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Chapter 1

Introductory Chapter: Advancements in the Management of Gallbladder Diseases

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Gallbladder diseases are the most prevalent digestive diseases worldwide. They result in considerable amount of financial and social burden. At the same time, clinical studies on these diseases continue to advance at a rapid pace.

The surgical management of gallstones, the most common affliction of the biliary tree, has been parallel to the evolution of surgical techniques. The first surgical report on gallstones dates back to 1687 when Stal Pert Von Der Weil found gallstones while exploring a patient suffering from peritonitis [1]. Open cholecystectomy was first performed and reported by the German surgeon, Carl Johann Langenbuch since one century. Later, this technique became the gold standard for the treatment of symptomatic gallstones [2] and remained so for almost a century. Operative cholangiography was introduced by Mirizzi over 60 years ago for the detection of stones in the bile duct [3].

Dr Med Erich Mühe of Böblengen, Germany in 1985, while performing laparoscopy for gynecologic indication on a woman who was also suffering from symptomatic gallstones, moved the laparoscope to the subhepatic area and succeeded to remove the gallbladder laparoscopically and the patient recovered uneventfully. Once the safety of laparoscopic cholecystectomy was established, it became the treatment of choice for cholelithiasis [4] and one of the most commonly undertaken procedures in general surgery.

Since then, this procedure has undergone many refinements including reduction in the port size and number. Some surgeons tried two ports only; others described single port technique through the umbilical scar. No scar laparoscopy cholecystectomy has been also described, the so-called NOTES (natural orifice transluminal endoscopic surgery) [5]. In the later technique, the gallbladder is removed through transanal, transvaginal, transcolonic, and transgastric route. Percutaneous cholecystostomy is another option available for too ill patients who are not fit for the laparoscopic procedure. It seems that surgical management of gallstones is still open for innovation, and further advancement included robotic-assisted laparoscopic cholecystectomy [6].

Gallbladder cancer (GBC) is the most frequent type of cancer of the biliary tract. The most important risk factor is gallstones. The majority of GBCs are adenocarcinomas, followed by squamous cell, adenosquamous, and undifferentiated carcinomas [7].

Surgery is the only curative therapy for GBCs. Most of the resectable GBC cases are diagnosed incidentally after histopathological examination of the resected gallbladder after laparoscopic cholecystectomy performed for gallstones [8].

The aim of surgery is to get negative margins. The extent of resection varies depending on the extent of the disease. For locally advanced GBC, major hepatectomy and/or resection of the CBD would be mandatory to get R0 resection. On the other hand, the potential benefit of such major resections should be balanced against the high morbidity and the poor.

The roles of radiation, chemoradiation, and chemotherapy in the neoadjuvant and adjuvant settings remain to be defined. Chemotherapy has been used in advanced GBC with limited results. Molecularly targeted agents that inhibit angiogenesis and EGFR pathways are being investigated [9].

Advances in the understanding of the molecular pathways of and genetic profiling of gallbladder cancer patients together with integration and coordination of clinical research efforts are critical to improve the outcomes for GBC.

The articles in this book provide a state-of-the-art review of the current knowledge and advances in research and management of gallbladder diseases, as well as promote future research, and clinical studies on the biliary disorders worldwide.

The immunogenetic basis of cholecystitis including human leukocyte antigens, as well as single-nucleotide polymorphism, is discussed in a separate chapter. Other chapters also discuss the role of endoscopic ultrasound in the diagnosis of gallbladder diseases together with the diagnostic pitfalls of acute cholecystitis. Advances in laparoscopic cholecystectomy are reviewed, particularly those related to robot-assisted and laparoscopic cholecystectomy in special situations like pregnancy and left-sided gallbladder.

Advances in gallbladder cancer research including noncoding RNAs are reviewed. Topics related to incidental gallbladder cancer, including its incidence, management, and prognosis, are discussed in details. Recent advances in the diagnosis, staging, and management of gallbladder cancer whether surgical or non-surgical are reviewed as well.

This book focuses on basic science and current methods in the diagnosis and management of gallbladder diseases. It is written by recognized medical experts and expected to be of great value for researchers and practicing gastroenterologists, endoscopists, and surgeons.

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